AUGUST, 1960

THE AIR LINE PILOT

In This Issue:

- Air Safety Forum Agenda
- Hot Weather Takeoffs
- Crashing The Communications Barrier
- The Field The Pilot Trusts
- Medical Considerations In Civil Jet Operations

Airport Development: theme of Eighth Annual Air Safety Forum

THE AIR LINE PILOT

AUGUST, 1960

Vol. 29, No. 8

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66

In This Issue . . .

- **Air Safety Forum Agenda** ..... **Page 4**
  (Complete Agenda of Eighth ALPA Air Safety Forum)
- **A Look At The Real Facts** ..... **Page 5**
  (ALPA's Answer to an Editorial in the New York Times)
- **Hot Weather Takeoffs** ..... **Page 8**
  (An Analysis of the Effects of Hot Weather on Jet Takeoffs)
- **Medical Problems In Jet Operations** ..... **Page 10**
  (The Effect of the Jets on Crew and Passenger Health)
- **ALPA Camera** ..... **Page 13**
  (Highlights and Sidelights of the News and ALPA in Pictures)
- **Crashing The Communications Barrier** ..... **Page 14**
  (A Look at a Major Labor Problem—Effective Communications)
- **Space Age Lunches** ..... **Page 16**
  (What the flight lunch of the future might be like)
- **Aviation Writer Views The FAA** ..... **Page 17**
  (Writer Supports Air Line Captains Right of Command)
- **And What Happens When "Official Thinking" Gets Around To 60-Year-Old Passengers?** ..... **Page 18**
  (Author Wonders if Passengers will also be Retired at Age 60)
- **The Field The Pilot Trusts** ..... **Page 19**
  (Why Pilots Pick Certain Airports for Emergency Landings)
- **Along The Line** ..... **Page 21**
  (Features on Interesting Air Line Pilots)
- **The Briefing** ..... **Page 23**
  (A Digest of News and Views in Aviation)

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On The Cover

THIS MONTH'S COVER features a graphic wide-angle view of Chicago's Midway Airport. Airports and airport facilities throughout the United States will be the main study topic of the Air Line Pilots Association's Eighth Annual Air Safety Forum scheduled for September 13-15 in Chicago.

Experts from all industry facets, government and military will join with ALPA's Aviation Safety representatives to analyze the progress and needs of the nation's airport structure.

Since its establishment in 1953, the Forum has been one of the industry's key sounding boards for the exchange of new information and for the study of deficiency areas in commercial aviation.

The Forum provides a sound basis for a mutual exchange of ideas and information between safety-conscious personnel representatives of the entire aviation industry.

It is the hope of ALPA that the Forum's panel discussions will provide additional information upon which the entire industry can base their coordinated efforts to further the improvement of today's airports.

Briefly outlined, the Forum will consist of closed ALPA sessions on the 13th. C. N. Sayen, ALPA President, will open the Forum to general industry participation with his annual welcoming address the morning of the 14th. Panels will be held on the 14th and 15th. Wednesday evening participants will attend the annual banquet highlighted by the presentation of the Fourth Annual Safety Award to be presented to the pilot or pilots adjudged to have made outstanding contributions to air safety during the past year.

A complete list of agenda items and speakers is contained on page 7 in this issue.

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Eighth ALPA Air Safety Forum

THE MAIN THEME of the eighth ALPA Air Safety Forum will be a review of currently critical problems in airport development.

The 1960 Air Safety Forum will be held September 13-14-15 at the Midway House Motel, located adjacent to the Home Office in Chicago.

Airport development problems will be jointly studied and discussed by Association and industry representatives. During the past year, ALPA safety representatives have been conducting airport surveys to determine problem areas. Reports on U. S. airport development status as determined by ALPA's safety survey will be presented at the Forum.

Since the presentation of the initial Forum in 1953, the Forum has become one of the most important and significant sounding boards for air safety in the country.

The specific aims of the Safety Forums are:

- To insure adequate study of Association air safety subjects.
- To provide opportunity for analysis of the work done by special pilot committees.
- To enable Association representatives to exchange viewpoints with top industry and government experts.
- To promote ALPA organizational safety efficiency.

Tuesday's agenda will be closed to all but ALPA members. In the morning, T. G. Linnert, C. F. Eck, and T. A. Basnight will speak on ALPA's Safety Organization with special emphasis on the Association's airport safety survey. E. F. Hogate (AAL) will give an address on a Central Safety Chairman's job, and E. R. Watson (EAL) will talk on a Proposed Operations Briefing Program.

The main discussion will be in the following areas:

- Fire and Rescue Facilities.
- Approach, Runway Lighting and Marking, Including Taxiways.
- Runways—Length, Width, Surface and Strength.
- Airport Improvement Implementation Problems.

In addition, pilot representatives will have an opportunity to discuss topics of general interest to the Forum group. The evening will be spent in consultation with representatives from the aircraft industry, whose organizations manufacture equipment for airport operation and safety.

Clarence N. Sayen, ALPA president, will give the welcome address to the Forum participants Wednesday morning.

The first panel on Fire and Rescue Equipment Requirements will be opened with remarks by the Chairman, W. L. Collier (PAA), who will present the Association's viewpoints on the need for improved fire and rescue facilities. Other viewpoints on this subject will be expressed by John Bridges, Special FAA Airport Safety Agent; a representative of the Airport Operators Council and a representative from the American Association of Airport Executives. A report on Airports, Communities and Noise will be given by Jack R. Cram, President of the National Aircraft Noise Abatement Council. This subject is becoming increasingly important at more high density airport areas. Mr. Cram will provide complete information on how NANAC plans to help control the complex problem.

The Airport Lighting and Marking Panel will proceed under the direction of D. S. Little (AAL), who will discuss the pilots' need in airport lighting. He will be followed by Col. W. S. Cowert, Chief FAA National Aviation Facilities Experimental Center, who will speak on FAA/NAFEC Developments in Airport Lighting. The other panel participants include Walter A. Jensen, Director of Operations of the Air Transport Association, speakers from the Airport Operators Council and the American Association of Airport Executives as well as Lt. Colonel Roy L. Strong of the U. S. Air Force.

The guest speaker at the evening banquet will be M. N. Gough, Director, Bureau of Safety Investigation of the Civil Aeronautics Board. Following the dinner, the Fourth Annual Air Safety Award will be presented to the pilot or pilots adjudged to have made outstanding contributions to air safety during the past year.

Thursday's agenda will open with the Runway Criteria Panel under the chairmanship of L. H. Mouden (BNF), who will speak on Runway Adequacy as reported in ALPA Airport Survey Data. The other representatives on the panel will be Phillip A. Hahn, Chief Airport Engineering Branch of the FAA, who will speak on the FAA's Program for Reducing Runway Deficiencies; W. E. Rhoades, Manager, Flight Engineering of United Air Lines, who will give the Air Line's viewpoint on Runway Development Needs and a representative from the Airport Operators Council and the American Association of Airport Executives.

The last subject on the program will be a panel discussion on Furthering Aviation Safety which will proceed under the direction of J. D. Smith (CAP). Captain Smith will present ALPA views on efforts to obtain airport improvements. Other participants will be Chester G. Bowers, Chief Airport Operations Branch of the FAA, G. E. Petro, President of the American Association of Airport Executives and representatives of the National Business, Aircraft Association. Panel members will present the views of their respective organizations on airport safety.

It is expected that the 1960 Air Safety Forum will provide additional information upon which ALPA and industry representatives can continue coordinated efforts to further airport safety improvement programs.

Following the conclusion of the Forum, a complete report on all activities and discussions will be published in the October AIR LINE PILOT.

Three-Day Air Safety Meeting Agenda includes Panels on Fire and Rescue Facilities; Approach and Runway Lighting; Runways, and General Airport Improvement Implementation Problems.

Lets Take A Look At The Real Facts!

REPORTERS HUDSON and Witkin, of the Times News Staff, reported fairly and objectively the events which recently resulted in spontaneous refusals of pilots to fly under what they felt were unacceptable operating conditions.

On the other hand, your editorial, "FAA And The Pilots," misleads the public concerning the same facts.

"Pilots" is used generally because air line pilots are not the only ones who have strong differences with the present Administrator. Practically every pilot in the world shares their views.

This is to clarify some of the editorial's erroneous conclusions:

First: The Association neither encouraged nor condoned the recent withdrawal from service.

Second: The air line pilots have never objected to reasonable inspections by the FAA. Many of such rules were encouraged by the Association during the development of the Civil Air Regulations.

Third: The pilots have been insisting for many years that provision be made for two pilots to be in their seats at all times during the operation of air line aircraft.

Fourth: No jet air line aircraft in this country is being flown without a minimum of three pilots in the crew, and the management of most air lines and the pilots throughout the world endorse this concept.

If all of the foregoing is true, why the present quarrel? The fact is that during the past one year and a half, the Federal Aviation Agency public relations staff, knowing that the public is not familiar with aviation operational problems, has used safety to excuse any action of the Administrator—no matter how arbitrary, and has waved the flag in justification of useless acts or the ignoring of problems. Through public relations efforts at public expense, the Federal Aviation Agency has sought to make it appear that the Administrator is the sole protector of the public interest in all matters of air safety, and only a brave and courageous Administrator is protecting them against the air lines, the pilots, and all other interests who are irresponsibly bent on self-destruction. The pilots know better. They also know how aviation progress and safety are bound to suffer if responsible officials are misled along with the public into believing it.

The dive over the North Atlantic, to which the editorial refers, took place during an operation approved by the Administrator, but which the pilots refused to fly because two pilots could not be in their seats at all times. The pilots insisted that the aircraft not be operated without provision for two pilots to be in their seats at all times and pointed out that this could only be accomplished if another individual on the flight deck is qualified to relieve them during trips to the washroom, while they were eating, during necessary absences to cope with unruly or inebriated passengers (permitted by the Administrator), during periods of sickness, and so forth. When a three-pilot crew was provided, the line pilots returned to flying the airplane. The Administrator's "stay in your seats" edict was, in our view, purely a publicity stunt. Aircraft can still be operated with only one pilot at the controls and, you might be surprised to know that as far as the Administrator is concerned, can still be operated with only one pilot aboard the aircraft being qualified to fly the particular aircraft.

"Stay in your seats" may still mean, under the Administrator's rules, a continuous period of twelve or fourteen or more hours of flight time during an on-duty period of twenty or more hours. The pilots have protested vigorously and threatened to refuse such flights. The company, in this case, secured an injunction in the Florida Court after losing the identical case in the New York Court. The Administrator has done nothing.

The pilots have never requested that there be four men on board air line aircraft. They did request that the third man on the airplane be qualified as a pilot so that he could do communications, navigation, air traffic control and relief work for the pilots at the controls during incapacitation or necessary absences due to the performance of required duties and responsibilities. Of twelve air lines operating jet aircraft in this country, seven utilize a three-pilot crew. On the five other air lines, the management has insisted on adding a non-pilot engineer to the basic three-pilot crew. On all carriers the contract between the Association

The above letter was written by Association President C. N. Sayen in answer to a recent editorial appearing in the New York Times entitled "FAA and the Pilots."

The New York Times.

ALL THE NEWS THAT'S FIT TO PRINT

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F. A. A. and the Pilots

The pilots of Eastern, Pan American and other airlines who are reporting "sick" these days are in effect, striking against the public interest. Their action stems from the policies of the Air Line Pilots Association, which, in effect, is attempting to outmaneuver the Government.

The basic issues go back for years, but they have come to a head since E. R. Quesada, former Air Force general, became head of the Federal Aviation Agency and undertook to enforce the law. Mr. Quesada has won a court battle making mandatory the retirement of pilots at age 60, a measure opposed by the pilots association. He has put into effect, under pain of suspension, a rule that pilots must remain in the cockpit during flights, except for legitimate reasons. This regulation became necessary after one airliner took a steep and sudden dive with the pilot absent, and after a pattern of social absences had been demonstrated. Again the regulation brought objections from the pilots. Now the association is bucking a rule that requires Federal Aviation Agency inspectors, checking pilot proficiency and flight safety, to sit in the third pilot's seat when making check rides in jet airliners. The agency does not require three pilots for jets, but the practices of the pilots association had forced the airlines to accept three pilots. Now the pilots are attempting to force the F. A. A. to back down and to remove its inspector from the third pilot's seat. Moreover, they are trying to extenuate their conduct in the name of safety.

The Air Line Pilots Association, though not all of its members, objects to the tightened regulations now being enforced by a courageous administrator. Yet there can be only one end to this controversy. The public interest is paramount; the airlines are common carriers, and the pilots as well as the owners must conform to the law.

and the company provides that the pilot in command is not obligated to operate the aircraft unless he has two other pilots to assist him. The procedures for operating the aircraft and the training programs of the carriers (all approved by the Administrator), have all been established around this concept. This is the normal method of operating the aircraft.

Despite this, the Administrator, in a characteristic hasty action taken in a press conference, and without consultation, hearings, or the notices required under the Administrative Procedures Act, adopted a regulation that has the effect of depriving the pilot in command of the services of one of the pilots during passenger-carrying flights on which an inspector is riding. This arbitrary action deprives the pilot of the services of one of his assistants during the entire flight—including the most critical stages, whereas if the inspector occupied the seat which has been made available to him by the air carrier, he could observe the normal operation of all of the crew members; and, except for the one or two minutes during take-off, would be free to move about the flight deck at will, observing anything he desired.

The inspection facilities which have been made available by the carriers for inspectors on jet aircraft are far superior to those which have been provided on other air carrier aircraft.

The Administrator's hastily adopted regulation permitted the carriers to rush into courts on the premise that the Federal Law (adopted June 8, 1960, in a press conference and without notice) overrides the provisions of the pilots' contracts, and negates solemn agreements and commitments to their pilots as to the minimum assistance they would be provided for safe flights.

The pilots and carriers have repeatedly demonstrated that the inspection requirements of the Federal Government can be adequately met within existing arrangements. The facilities provided for the inspector are far superior to those which have been available in the past and are currently available on other transport aircraft. The individuals representing the pilots and carriers are not exactly novices in the aviation business, having spent many years in air line flying, operations, or management and often including Colonels, Admirals, or Generals. No one has been able to comprehend the Administrator's logic. The Administrator, himself, has never tec-

nically justified it; but he is, nevertheless, arbitrary and adamant.

Space will not permit a thorough discussion of the Age 60 question which your editorial also brought up. However, the indignation of the pilots, which should be shared by other citizens of this country, stems from the fact that again the Administrator, in characteristic arbitrary fashion, without any hearings or taking of evidence, has, for the first time in the history of this country, established an arbitrary chronological age for the termination of a professional career regardless of the individual's health or qualifications. Can you imagine the public indignation if the same action were attempted by the Congress in connection with the medical profession who daily take the lives of people into their hands? Should we prohibit a doctor from performing an intricate operation because he has achieved the age of 65 or 70 and even though he has competent assistants who can take over at any time? In this case, the Congress has delegated their entire legislative authority to one single individual with no effective appeal from his decisions. One of this individual's first acts was to set a precedent for the United States Government and all of its agencies that the Federal Government may terminate a professional career based on an arbitrary chronological age and without any provision for evidence or hearings in the individual or group case. The public has been deluded by public relations "expertise" into believing that some contribution to safety has been made when, in fact, many pilots become incapacitated at all ages and their is no Federal requirement that any other member of the crew be qualified to assume their responsibilities and duties.

The foregoing does not justify the pilots' ignoring the orders of a Federal Court. However, it is a very difficult task to convince people that they must disregard their own statutory responsibility for the safety of a hundred or more lives simply because some attorney is able to convince a judge of some technicality within the law. It is particularly difficult when some judges grant injunctions liberally and some covering complicated technical and safety problems have been granted after only five or ten minutes' consideration.

We have very grave safety problems in aviation which must be met. Our air traffic, airport navigation, and communications systems have fallen far behind the development of the aircraft and created intolerable cockpit workloads. The pilots have urged the Government to take the lead in solving these, and other problems. Unfortunately, the Administrator takes any criticism of aviation facilities or safety as a personal insult and reacts with propaganda barrages.

Although the public is being fed cliches to mould a public image of the Administrator as their sole protector in matters of safety, we submit that the statutory responsibility of the carriers and the pilots provides for a higher standard of safety than does that of the Administrator. The individual pilot has the statutory responsibility to approve or disapprove the inauguration of any flight and to make the command decisions in conducting it. I do not believe that you would board an air line airplane with tranquility if you did not feel that the pilot in command was satisfied that the flight could be conducted with complete safety.

The Air Line Pilots Association fought for 18 years to have the Federal Aviation Act of 1958 adopted. However, Congress in its preoccupation with mid-air collisions and a breakdown of the air traffic system, went overboard in delegating their authority to legislate over the aviation industry to one man. When this legislation was under consideration, we warned repeatedly in our testimony to both Houses of Congress that it was extremely dangerous to concentrate such tremendous authority in the hands of one individual and that there was no precedent in our Government for it. We urged strongly that provision be made for review of the Administrator's decisions. Experience has shown that our fears were well-founded. Congress has given life and death control over the manufacturers, the air line operators, the pilots, and all segments of the aviation industry to one man who may or may not possess good judgment. There is no provision for review of the Administrator's decisions except by appeal to the Federal Courts who, under existing law, are reluctant to interfere with the "expertise" of the Administrator. This situation cannot long exist and unless Congress takes action to provide relief by adoption of S-3563 and H.R. 12441 now before them, chaos will be the inevitable result. I hope that the foregoing will provide a broader understanding of the reason for the pilots' indignation and unrest.

"The Pilots have long urged the Government to take the lead in solving the Real Problems of Air Safety."

Hot Weather Takeoffs!

By I. K. Collins

Performance Engineering Branch, SAC
From Combat Crew

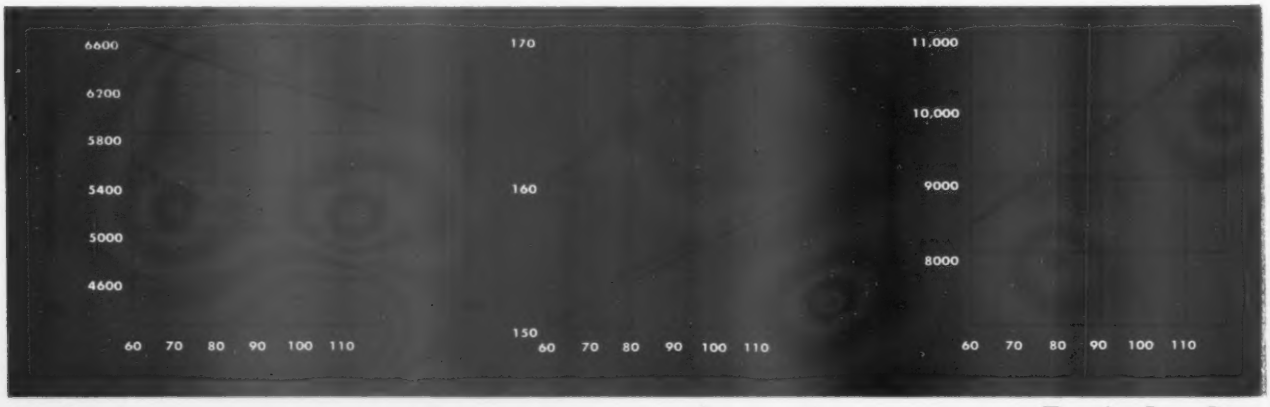
(EDITOR'S NOTE: The following article was written specifically for military "users" but pertains generally to situations which are also common in commercial operations. Any reference to equipment or procedures purely military and not applicable to commercial aviation will be explained in the context of the story.)

COMES HOT WEATHER, our takeoff accident rate goes up. Why? This is not a $64,000 question. The answer is simple. Of all types of performance exhibited by an airplane, takeoff performance is most profoundly affected by outside air temperature (OAT). As temperatures goes up, takeoff performance goes down, but the same takeoff weights are needed for training or EWO. Therefore, we must operate closer to takeoff performance limitations during hot weather. Under these conditions there is less **tolerance of error.**

To err is human, as the saying goes; but, unfortunately, the error or mistake in judgment which will cause a few bad moments during a non-critical takeoff will "buy the farm" when the conditions are such that the tolerance for error is small. While it is true that material failure could cause an accident on a critical takeoff whereas it might not if the takeoff were not critical, this article concerns itself only with factors over which the pilot should have control.

Planning

As far as we are concerned here, planning is the beginning of any successful operation and cannot be overemphasized. The more critical the takeoff the more accurately and completely all factors which could affect it should be considered. The takeoff data in the flight manuals show very accurately the effects of temperature on performance. Much effort has been expended to show all possible variations. In spite of this, pilots have been guilty of incomplete planning and lack of appreciation for the effects of high temperature on takeoff performance.



or some, this was their last mistake. emember, an error committed in lanning a critical takeoff can easily allify any emergency action taken uring the takeoff no matter how roper.

Temperature Effect

The pilot should understand why emperature is such a potent factor in akeoff performance. This may be "old at" for some but it won't hurt to re- iew it. High outside air temperature ncreases the takeoff distance for two easons, both stemming from the lower lensity of the air at high temperatures. First, the engine thrust is decreased; and second, the ground speed required o achieve takeoff airspeed is in- creased.

Effect on Engine

The thrust output of an airbreath- ing engine is directly proportional to the weight of air passing through the engine. Since only a fixed volume of air can pass through the engine, thrust depends entirely on air density. Since air density decreases as temperature in- creases, the thrust output of the en- gine decreases. This is illustrated in Figure 1 for a typical jet engine. Low- er thrust, of course, means a longer takeoff distance.

Some of our later type jet aircraft are equipped with "flat rated" engines, so called because by throttle movement beyond the normal maximum setting for takeoff, the same thrust available at 60° F. is maintained up to 100° F. This feature reduces the effect of tem- perature on takeoff performance but does not eliminate it because the ground speed required for takeoff is increased by temperature. This, and the higher takeoff gross weights these aircraft will be operated at, means that takeoffs will still be critical in hot weather. (Note: the above statement does not apply to jet engines presently n use on commercial aircraft now in ervice. However, this does not pre- lude the possibility of future use of flat rated" engines on commercial air- raft.)

Effect on Airframe

The indicated airspeed required for akeoff at a given gross weight is inde- endent of air density. Ground speed, owever required to attain this indi- ated airspeed varies inversely with air ensity. Since air density decreases as emperature increases, the ground peed required to attain a given indi- ated airspeed increases. This is illus- rated in Figure 2. Being proportional o ground speed, takeoff distance in- reases with outside air temperature.

The combined effect of outside air emperature on takeoff distance at a iven gross weight and field pressure altitude is shown for a typical military jet aircraft in Figure 3.

To Go Or Not To Go

The foregoing discussion has been concerned primarily with how the direct effects of outside air temperature increase takeoff distance and thereby make the takeoff critical. The fact that the takeoff is critical should have a very definite influence on the pilot's decision in the event an engine fails during the takeoff roll. To appreciate what influence it should have and why, some facts concerning takeoff limitations and our method of monitoring takeoffs must be understood.

The present limitation for peacetime operation is that critical field length not exceed the runway available. This means that the aircraft can normally be handled safely if an engine fails at any time during the takeoff roll. There are, however, some points in this roll where this becomes a serious problem, and in some cases a moment's indecision, an improper procedure, or a malfunction results in the loss of the airplane. Let's look at this situation.

In the most critical cases, critical field length equals runway available. In this case, if an engine fails before reaching the critical engine failure distance the aircraft cannot continue the takeoff; there is not sufficient thrust available to become airborne before running out of runway. The takeoff in this case must be refused, and normally a successful stop can be made on the runway. But let a tire blow, or hit a wet spot and the aircraft cannot be stopped on the runway. If, however, the engine fails after critical engine failure distance the takeoff can be continued on the reduced thrust. In fact, it must be continued since there is not sufficient runway remaining to stop the aircraft even if everything works perfectly.

Critical engine failure distance is the minimum distance from brake release at which the aircraft can suffer engine failure and safely continue the takeoff on the remaining engines or to stop. This distance takes into account the minimum directional control speed during the ground run for an outboard engine failure as well as the ability to continue on the reduced thrust or stop within the remaining runway.

In the case of a high thrust, four engine aircraft such as the KC-135 (Note: the KC-135 is the military equivalent to the Boeing 707, the first pure jet U. S. commercial airliner) the ground minimum directional control speed may well be the speed which will determine the critical engine failure distance, especially if the runway is wet or icy. In fact, on a short wet or icy runway, the normal maximum takeoff weight (weight at which the critical field length equals runway available) may have to be decreased in order to insure that the distance required to attain the ground minimum directional control speed does not exceed the refusal distance.

It is apparent that the critical engine failure distance is a very meaningful point on a critical takeoff. Since it is the earliest point in the takeoff roll that the aircraft could suffer an engine failure (or similar loss of thrust) and still continue safely, the pilot's decision should obviously be to abort if an engine fails prior to reaching the critical engine failure distance. If an engine fails or any other emergency occurs after passing the critical engine failure distance, the pilot should always aggressively continue the takeoff. There obviously are exceptions to this last statement, such as if the pilot were unable to maintain control of the aircraft or if a wing fell off.

Word Of Advice

One further word of advice concerning the critical engine failure distance and any emergency other than an engine failure which might occur after passing the decision point but prior to the critical engine failure distance. It is extremely difficult to guarantee accurate and representative aborted takeoff data. Time required for the pilot to recognize and react to the emergency will vary with every pilot and type of emergency. Tire-to-runway friction coefficient, which is the primary factor in braking performance, varies with every runway surface condition. Because of this, the capability of aborting safely becomes more marginal and less reliable as the aircraft progresses from the decision point to the critical engine failure distance. Therefore, even on a critical takeoff, if an emergency other than an engine failure (or loss of control) occurs between decision point and critical engine failure distance, the pilot should stick to his decision to go which was made at the DECISION point. Sad experience has helped offer this advice.

In summary, be aware of the effects of high temperatures on takeoff performance and understand takeoff monitoring procedure so that you can take the right course of action when the lives of you, and your passengers depend on it. Don't let a hot day takeoff be your last.

Medical Problems In Jet Operations

By Otis B. Schreuder, M.D.

Reprinted From Aerospace Medicine

IT IS THE INTENT of this paper to bring up to date current thinking on some of the major medical problems encountered in civil jet operations. Since medical problems in jet operations have been considered in the past in a number of excellent papers both from a military[7] and civilian viewpoint,[2,9] only more controversial points will be presented. The commercial jet era actually started in October, 1958, with the first trans-Atlantic crossing by a British carrier on October 4, 1958, and by an American carrier on October 26, 1958. Since October, 1958, operation of regularly scheduled jet flights has rapidly expanded, the first regularly domestic flights taking place in January, 1959 followed by regularly scheduled trans-Pacific flights in September, 1959, and round-the-world flights in October, 1959, by a U. S. international carrier. The inauguration of regularly scheduled flights by turbo-jet aircraft has stimulated air travel because of its greater comfort, increased speed and other contributing factors.

A few of the operational statistics are of interest. The average cruising speed of the Boeing 707 and the Douglas DC-8 is approximately 555 miles per hour and the normal cruising altitude is between 25,000 and 40,000 feet. Both aircraft have a maximum passenger capacity of approximately 189 passengers depending upon the flight configuration and fuel load. Of particular interest is the fact that both aircraft are constructed to maintain a relatively high cabin differential pressure, the Boeing having a maximum differential pressure of 8.6 psi and the Douglas DC-8, one of 8.77 psi. Hence a cabin altitude of sea level can be maintained at an ambient altitude of 22,500 feet in the former and at a slightly higher ambient altitude in the latter.

Indoctrination Of Air Crew

It has been agreed uniformly that indoctrination of air crew members in the physiologic aspects of high altitude flights is essential. This indoctrination can be given by informal or didactic lectures, discussion, question and answer periods, home reading, and training films. Details of the indoctrination program have been given in previous papers.[2,6,9] In this indoctrination particular emphasis should be placed upon the possibility of decompression, the times of useful consciousness, effects of hypoxia, emergency procedures to be used in case of a decompression, and the use of oxygen equipment including the oxygen mask. There is some question as to whether or not indoctrination in a low pressure chamber should be required. This question is certainly open for discussion. It is the opinion of many, including this author, that indoctrination of the air line pilot can be adequately and properly presented by the method described rather than requiring air crew members to undergo additional training in the low pressure chamber.

Loss Of Pressurization

One of the major concerns prior to the current jet era was the possibility of a decompression. The airframe manufacturers have taken this into consider-

tion and through study and research have constructed an airplane of such structural design that they have assured the air carriers that a decompression will not occur. Nevertheless, the possibility of decompression must be taken into consideration and necessary steps must be taken to insure the safety of the traveling public. In this connection, adequate oxygen supply is required for the crew and passengers. The operational crew members are provided with a demand type of oxygen equipment with an oxygen supply terminal immediately available to each passenger, the oxygen mask automatically being projected in front of the passenger in the event the cabin altitude attains 14,000 feet. Oxygen automatically flows when the passenger places the oro-nasal type of mask to his face.

Up to the present time, major decompression (explosive or rapid) has not occurred on the turbo-jet aircraft in flight in commercial airline operation in the United States. In the Boeing 707, technical difficulties with the pressurization system such as valves jamming after take-off have been reported. There have been a few cases where pressure has been partially lost during flight owing to technical difficulties such as failure of the outflow valve deflection ring and jamming of the outflow valve by aircraft insulation blankets. The possibility of decompression at altitude introduces the question of whether or not the pilot actually in control of the aircraft should wear and use the oxygen mask and at what altitude this should be required. The primary concern of all interested parties, of course, is flight safety. There are, however, two different schools of thought, one that the oxygen mask need not be worn at all but kept at the ready position to be donned immediately (within five seconds) in case of emergency, and the other that it should be worn continuously above a certain altitude. With reference to the latter there is a divergence of opinion at the present time.

In an excellent and thorough study by the Royal Canadian Air Force,[5] it was concluded that the Pate Suspension Oxygen Mask should be worn at the readiness by transport crews up to 35,000 feet and that above 35,000 feet one pilot should wear the mask on his face at all times. It is the opinion of this author that 35,000 feet is a reasonable altitude for this requirement provided that (1) the pilot has a satisfactory quick donning mask and has been thoroughly indoctrinated in the physiologic effects of high altitude flight with all of its ramifications, (2) that he is thoroughly indoctrinated in the necessity for strict oxygen discipline and has been subjected to simulated decompressions in the simulator and training flights, (3) that there is a fail-safe warning system for the recognition of a decompression, and (4) that there is an adequate and satisfactory inspection system to insure the proper functioning of the oxygen system and the proper maintenance and fitting of the oxygen mask to each crew member.

It will be recalled that the average time of useful consciousness at 35,000 feet is approximately thirty seconds. In a hypothetical example in which a rapid decompression is caused to occur in the Boeing 707-320 series aircraft at a flight altitude of 35,000 feet (owing to the loss of a cabin window), and if one allows twenty seconds for the reaction of the pilot to start descent at the rate of 14,000 feet per minute, the cabin altitude and ambient altitude would equilibrate at 31,000 feet seventeen seconds later. After another period of twenty-three seconds or an elapsed time of eighty seconds the aircraft would be at 23,000 feet and if the same rate of descent were continued, the altitude would be 16,000 feet after a total elapsed time of 110 seconds. The altitude of 23,000 feet is not considered critical and 16,000 feet is much less critical.

The Crew

Air Crew Members and Jet Operations. By interrogation and observation, it has been concluded that the actual mechanical piloting of commercial jet aircraft is no more fatiguing and possibly might be slightly less fatiguing than piloting piston-engined aircraft. This is based upon Pan American World Airways' jet experience of approximately 77,000 flight hours to date. There is no question, however, that it requires a greater degree of physical and mental alertness. During the first seventy-five to 100 hours pilots seem to expend more nervous energy, but once they become thoroughly familiar with the aircraft they almost uniformly agree that it is a wonderful airplane to fly, even better than any piston-type that they have flown. The fact that there are fewer instruments and that there is a lack of vibration, decreased noise, and improved pressurization are additional factors which are responsible for decreased fatigue in the mechanical piloting of the airplane. On the other hand, there are certain other factors which must be taken into consideration, one of which is the increased speed which necessitates more rapid adjustment in changes in time, and feeding and sleeping habits. Whether the increased ease of operating the aircraft compensates for other factors is a controversial issue.

Early in jet operations there was a great deal of publicity about the effects in flight upon the flight service personnel, commonly called stewardesses and hostesses. Occasionally one still hears of these complaints but they have largely disappeared due to the fact that these employees now have become accustomed to the airplane. Among the complaints in lay journals and daily papers were irregular menustration, swollen ankles, low back pain, anorexia, fatigue and insomnia. With reference to menstrual irregularity there is no evidence that flying any type of aircraft is an etiologic factor in this condition.[1] Mainly because of the adverse publicity, a study was made of the sickness rate of our flight personnel flying jets as compared to the sickness rate of those on the reciprocating type of aircraft for a two-month period in the late summer and early fall of 1959. Statistically the rates were quite similar. The sickness rates of those on the jets were 2.2 per cent and 2.5 per cent for the months of August and September, respectively, while the sickness rates for those on the reciprocating type of aircraft were 3.2 per cent and 2.6 per cent respectively for these same months. During these two months the average number of hours flown per employee was statistically about the same. There were a few who complained of fatigue, anorexia, and insomnia but this was attributed mainly to apprehension and anxiety due to unfamiliarity with the airplane. As a result of this study and a subsequent review of our medical records, it is our opinion that the complaints listed in lay journals cannot be substantiated by actual fact.

The Passenger

The average passenger who has flown in jet aircraft is enthusiastic because there is no vibration and the pressurization system is better than in the piston-engined aircraft. Furthermore there is less noise in the cabin and flights require less time, all of which tend to produce a minimum of fatigue in the passenger. On the other hand, if one is unable to adjust sleep habits, the rapid change in time flying from West to East to West might induce fatigue on long flight. However, on the shorter flights such as on trans-Atlantic flights with a short stopover at his destination and ability to remain more or less on the time of the city from which he de-

parted, fatigue is greatly minimized.

Medical emergencies in flight are relatively infrequent. During the six month period from July 1, 1959, to December 31, 1959, in the Atlantic Area of the Overseas Division of Pan American World Airways, fifty-one medical emergencies occurred on our jet flights varying from a feeling of faintness to urinary retention. During this period of time 136,439 passengers were transported with a total of 259,000,000 passenger miles. By calculation, one medical emergency occurred for every 2,677 passengers and for each 5,000,000 passenger miles flown.

In view of the fact that some physicians have been ill-advised about the effects of flying during pregnancy, a few comments about this subject are presented. In a statistical study Webb and Harvey[8] concluded that air or surface travel, with judicious use of common sense, is without harmful effect on a normal pregnancy, regardless of the duration of the pregnancy. Other authors, including McFarland,[4] Diddle,[3] and Wright[10] have also reported that there is no deleterious effect upon the unborn child or the mother because of air travel. Of particular interest to the physician is the fact that the turbo-jet aircraft is very well pressurized, so that even at 40,000 feet ambient altitude with a cabin altitude of 7,500 feet arterial oxygen saturation of the passenger remains at a very high level. This is shown in Table 1.

TABLE I. CABIN ALTITUDE AND ARTERIAL BLOOD OXYGEN SATURATION

Ambient Altitude (Feet)	Cabin Altitude (Feet)	Atmospheric Pressure in the Cabin (Psi)	Arterial Oxygen Saturation (Per Cent)
40,000	7,500	11.2	93
35,000	5,500	12.0	94
30,000	3,700	12.8	95
25,000	1,400	14.0	96
22,500	Sea Level	14.7	96

A review of the medical records of the Atlantic Area of Pan American World Airways for the seven-year period from 1953 to 1959 inclusive during which time there were 6,785,591 passengers carried with a total of approximately 8,229,602,000 passenger miles, no cases of miscarriage or abortion occurred. The number of passengers and passenger miles includes 231,551 passengers and 878,167,000 passenger miles by turbo-jet from October 26, 1958, to December 31, 1959, inclusive. During this period of time one normal delivery occurred with the birth of twins in a piston-engined aircraft in the late summer of 1959.

The Ground Employee

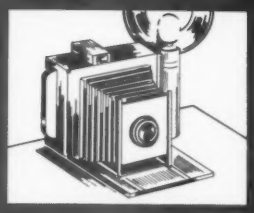
With a few exceptions, the industrial hazards to which the ground employee is exposed do not vary materially from the hazards in other light industry. The exceptions are mainly exposure to jet blast, high intensity noise, and the ingestion characteristics of the jet engine. A safety program has been developed to familiarize ground personnel with the technologic differences between jet and piston aircraft and to help them to identify the new types of hazards with which they might be confronted. A few of the hazards similar to those in piston aircraft are exposure to solvents, hydraulic fluids, and fuels.

One of the major problems has been the exposure to high intensity noise. However, with a well developed hearing conservation program this problem has been greatly minimized. The program basically consists of environmental control of noise at the source insofar as possible indoctrination of personnel in the undesirable effects of noise, minimization of exposure to high intensity noise areas, audiometric evaluation of the employee at periodic intervals, and the use of personal protective equipment depending upon the noise intensity to which exposed. The protective equipment consists of ear plugs or defenders, ear muffs, and helmets. In eighteen months of jet operations and with this type of hearing conservation program, up to the present time we have had no employee develop a hearing loss due to high intensity noise.

Summary

A few of the more important and current controversial problems in civil jet operations have been reviewed. Among these are the indoctrination of members of air crew in the physiologic effects of high altitude flight and the possible loss of pressurization with the necessity of strict oxygen discipline of the operational crew. The effects of jet operations on air crew members is discussed with particular reference to the effects upon flight service personnel. The air-minded traveler has found the jet aircraft much to his liking in view of the greater speed and comfort, absence of vibration, decreased noise intensity, and better pressurization. No deleterious effect of jet flight upon pregnancy has been observed. High intensity noise of the turbo-jet engine is still one of the major problems related to ground personnel but with the strict implementation of an adequate hearing conservation program, this problem has been greatly minimized.

1. *ANON: Air travel and menstrual irregularity. Questions and answers. J.A.M.A. 172:989, 1960.*
2. *BERGIN, K. G.: Medical aspects of civil jet air transport operations. J. Aviation Med., 31:221, 1959.*
3. *DIDDLE, A. W.: The effects of travel on incidence of abortion. Obst. & Gynec., 48:354, 1954.*
4. *McFARLAND, R. A.: Human Factors in Air Transportation. Chap. 16. New York: McGraw Hill Book Co., Inc. 1953.*
5. *BRYAN, A. C.: Aircrew Oxygen Requirements in High Altitude Transport Aircraft. RCAF Report IAM No. 59-4 Inst. of Avn. Med. RCAF, Toronto, 1959.*
6. *SCHREUDER, O. B.: Public health and aeromedical aspects of international airline operation. Presented at the annual meeting of the Aerospace Med. Assoc., Los Angeles, Calif., April 27-29, 1959.*
7. *Synopsis of the Aeromedical Aspects Jet Propelled Aircraft, Aero. Medical Laboratory, Engineering Div., AMC., USAF, January, 1949.*
8. *WEBB, C. F., and HARVEY, H. D.: Travel during pregnancy. Obst. & Gynec., 4:222, 1954.*
9. *WHITTINGHAM, H. E.: Aeromedical problems of jet passenger aircraft. J. Aviation Med. 25:440, 1954.*
10. *WRIGHT, C. C.: Transportation of sick and injured in civilian aircraft. J.A.M.A., 165:808, 1957.*



The ALPA Camera

Some Highlights and Sidelights of the News and ALPA in Pictures

UPI Photo

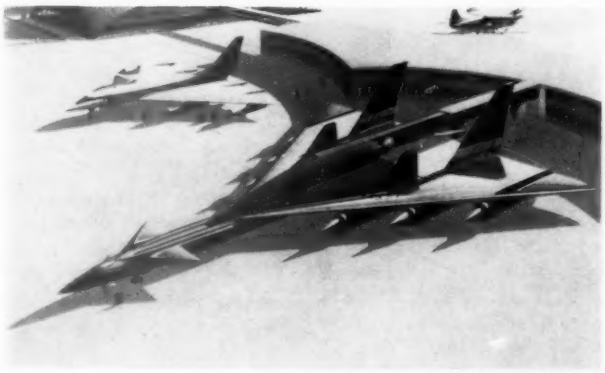
Firemen are shown probing through the wreckage of a Delta 880 jet liner which crashed recently during take-off from Atlanta kiling four crew members.

UNITED Photo

Jet Age Pin Wheel

NATIONAL Airlines Photo

Love-stricken! Palooza the porpoise relaxes in a typical male manner during his flight to Italy to marry a love-lorn lady porpoise named Lalla.



BELL AIRCRAFT Photo

Shown here is an Artist's conception of the hypersonic transport of the future. The plane of tomorrow is expected to be able to glide half-way around the world in one hour.

METRO NEWS Photo

The long and the short of it all—This unusual photo of an Electra was obtained through the use of a wide-angle lens.

Crashing The Communications Barrier

By Albert J. Zack

from Federationist Magazine

ONE ELECTION-YEAR forecast can be made with absolute certainly—there will be renewed discussion of the "one-party press' in America.

This certainty stems from another: that some 90 per cent of the daily newspapers, give or take a few points, will support the Republican ticket. Why? Because of the permanency of hostility of publishers and broadcasters towards any liberal movement.

This same hostility applies to the labor movement which is also faced with a hostile press and the need for finding ways to win in spite of it.

One widely held misapprehension should be cleared up at the start. Newspaper publishers (and the owners of other media, such as radio, TV and magazines) are not anti-union because of pressure from big advertisers. The reason is much simpler.

A newspaper, a magazine or a broadcasting station is itself a business—usually a big business. The owner is a big businessman. As a businessman and as an employer he shares the general views of the National Association of Manufacturers and the U. S. Chamber of Commerce. No one has to pressure him in that direction.

This means, as a practical matter, that until enlightenment overcomes the business community, the hostility of the publishers and broadcasters to the labor movement and to most liberals will be permanent. No amount of advertising by liberal interests could affect it in the least.

Liberals in politics are in a better position than the labor movement to surmount this handicap because:

(1) The license obligation of broadcasting stations insure a degree of equality between the parties;

(2) The broadcasters also serve to prevent really flagrant distortions on the part of unprincipled publishers;

(3) Liberal candidates in most areas have the further advantage of wholehearted trade union support. Trade unions take the political issues to their members and back the candidates in their public actions. The candidates are invited to union meetings; labor rings doorbells for them. Whatever the candidates own parties do for them, unions often do as much or more;

(4) Finally, the politicians' effort is spasmodic and is exerted only every two years.

Compare all this with the labor movement's problem, starting with the last point and working forward.

The labor movement's primary concern is what candidates do after they are elected. We support candidates not because of party label, but because of party (or personal) platform. In a very real sense our political activities must be judged not on what happens on election day, but what happens in the legislative year that follows.

To complete the contrast, the obligation of broadcasters to be "objective" and to make "equal time" available to both sides in a controversy is infinitely easier to enforce on political issues than on trade union issues. It is true that unions have the same theoretical effort to enforce them; but in many cases labor can obtain compliance only after the dispute is over.

Difficult as it is for liberal candidates, then, it is even more difficult for labor. We have to get our message across to the public, and to our own members, against even greater odds. But the job is far from hopeless. Paradoxically, it might even be easier for us to surmount these greater odds if we made full use of the facilities available.

The problem is one of communications; the labor movement needs to communicate more effectively both to union members and to the general public.

Organized labor needs to communicate not just in the short periods before elections, but all year around—so that what appears to be election victories can be translated into legislative results. That's the hardest part of all, because it's not the sort of thing that can be done, once every couple of years and then forgotten; it has to go on all the time.

There's an old saying that recognizing the problem is half the battle, but that still leaves the other half. There are no magic formulae, no easy solutions.

The problem divides into two parts —internal communications, those within the labor movement, and external communications, or how to reach the community as a whole.

The basic unit of labor's internal communications used to be the union meeting. That's still the best place when units are relatively small and attendance is high. But attendance simply isn't high except when something like a dues increase or a strike vote is brewing. Often it's hard to get a quorum. Attendance can and should be improved by making union meetings more interesting.

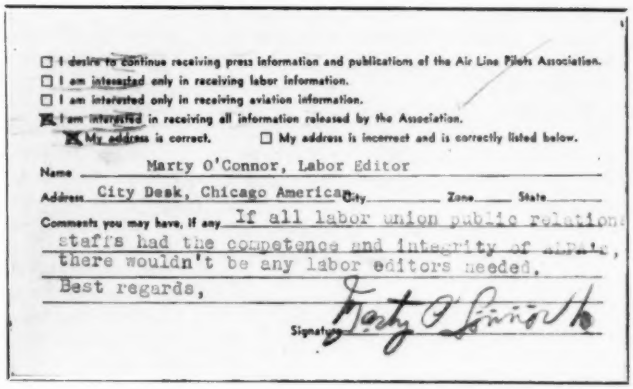
The absentee majority must be reached either at home or at work. One means is a local newspaper or newsletter, mailed to homes or distributed at work. This needn't be expensive; a mimeographed bulletin will do the job.

Few local unions or central bodies make full use of the leaflets and other various constitutional departments, COPE and others. Some of it is free and none of it is costly. How much of it is mailed to members, passed out at work, offered in "take one" boxes, posted on bulletin boards? Not nearly enough.

Then there are the AFL-CIO radio and TV programs. The radio shows deal directly with issues of concern to the labor movement. Yet only a relative handful of unions or central bodies try to promote an audience for any of these programs.

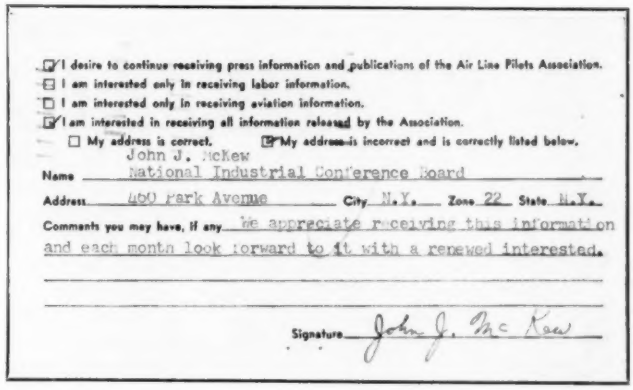
(Continued on Page 16)

Because of the Association's close interrelationships with communication sources it is necessary to periodically monitor media interest in the amount and type of material distributed by the ALPA Home Office. The primary purpose being to determine the adequacy and usefulness of such information and to elicit personal opinions both pro and con. The following postcards are representative of a large number of replies received in the Home Office as a result of a recent ALPA survey of press, TV and radio sources.



☐ I desire to continue receiving press information and publications of the Air Line Pilots Association.
☐ I am interested only in receiving labor information.
☐ I am interested only in receiving aviation information.
☒ I am interested in receiving all information released by the Association.
☒ My address is correct. ☐ My address is incorrect and is correctly listed below.

Name: Marty O'Connor, Labor Editor
Address: City Desk, Chicago American City: ____ Zone: ____ State: ____
Comments you may have, if any: If all labor union public relations staffs had the competence and integrity of ALPA's, there wouldn't be any labor editors needed.
Best regards,
Signature: Marty O'Connor



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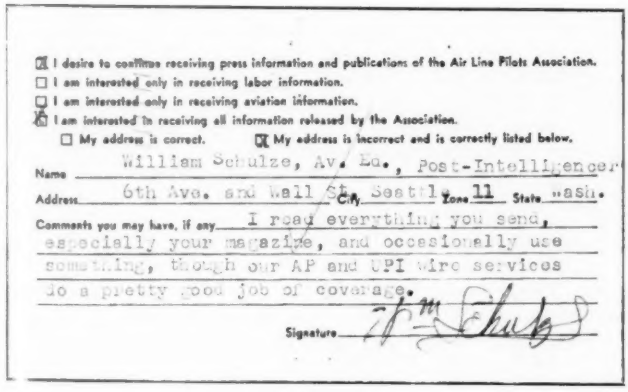
Name: John J. McKew, National Industrial Conference Board
Address: 460 Park Avenue City: N.Y. Zone: 22 State: N.Y.
Comments you may have, if any: We appreciate receiving this information and each month look forward to it with a renewed interested.
Signature: John J. McKew



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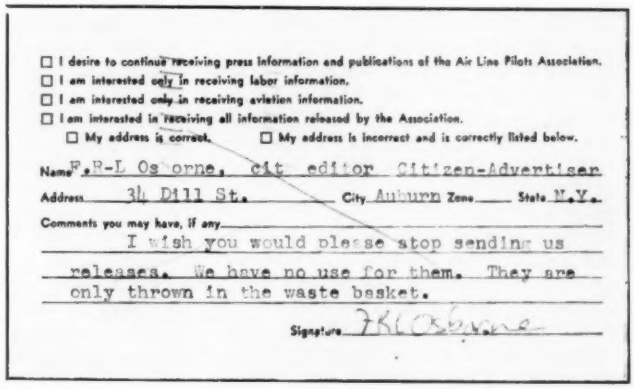
Name: William Schulze, Av. Ed., Post-Intelligencer
Address: 6th Ave. and Wall St. City: Seattle Zone: 11 State: Wash.
Comments you may have, if any: I read everything you send, especially your magazine, and occasionally use something, though our AP and UPI wire services do a pretty good job of coverage.
Signature: Wm Schulze



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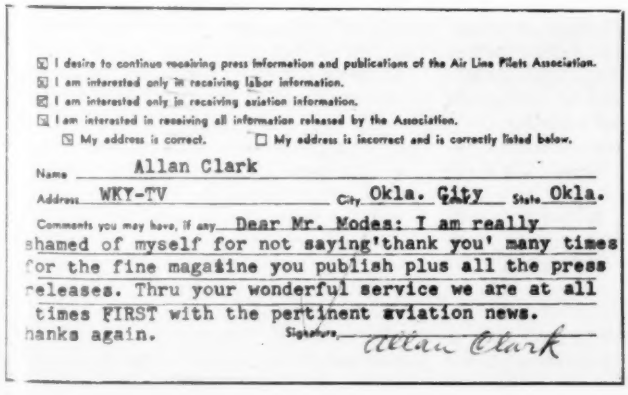
Name: F. R-L Osborne, cit editor Citizen-Advertiser
Address: 34 Dill St. City: Auburn Zone: ____ State: N.Y.
Comments you may have, if any: I wish you would please stop sending us releases. We have no use for them. They are only thrown in the waste basket.
Signature: FRL Osborne



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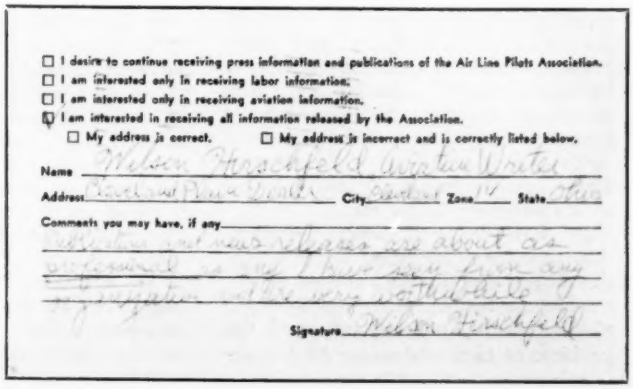
☑ My address is correct. ☐ My address is incorrect and is correctly listed below.

Name: Allan Clark
Address: WKY-TV City: Okla. City State: Okla.
Comments you may have, if any: Dear Mr. Modes: I am really shamed of myself for not saying 'thank you' many times for the fine magazine you publish plus all the press releases. Thru your wonderful service we are at all times FIRST with the pertinent aviation news.
Thanks again.
Signature: Allan Clark



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☑ I am interested in receiving all information released by the Association.
☐ My address is correct. ☐ My address is incorrect and is correctly listed below.

Name: Melvin Herschfeld, Overseas Weekly
Address: Rockefeller Plaza City: Zurich Zone: ____ State: ____
Comments you may have, if any: Your releases are about as interesting as a bus ride from Paris to Berlin. Otherwise very satisfactory.
Signature: Melvin Herschfeld

The second part of the problem—external communications or getting across to the community—is both harder and easier.

It is harder because we have to play on the other fellow's field and by the other fellow's rules. It's just the opposite, in that sense, of internal communications.

Where internal communications are concerned, labor has the horses if it can only get them harnessed. In external communications the opposition not only has the horses, but the reins as well.

The scope of this problem was noted earlier. However, it would be a mistake to write off the newspapers, magazines and radio-TV stations as hopeless. They may be opposed to the union point of view but they can be used along somewhat the same lines as they are used by the liberal politicians.

Except in the most benighted areas, newspapers do try to maintain the appearance of impartiality in their news columns, and some of them mean it. As a rule, a daily paper will print a news story about an action taken by a local union or central body if it gets the facts promptly and accurately.

The job is to use the papers as they are, as best we can, and look for other avenues. In most communities they are there.

They are the churches, the fraternal organizations, the women's clubs, the luncheon groups, etc., the places where union and non-union people mingle.

How often do trade unionists speak to these groups? Do union members politely press the program chairman for a discussion of the Forand bill. Do they ask the local Rotary for a chance to discuss minimum wages? Why not?

There's no magic formula, but by the same token the job doesn't require magicians. What it requires is hard, tireless work, carried on in an intelligent way, day in and day out, all year long.

SPACE AGE LUNCHES

Dr. Norman Lee Barr
Chief of Space Environment and Life Sciences Research, Republic Aviation Corporation

WHEN AND IF commercial air lines become involved in space flights those familiar coach flight box lunches will probably undergo some radical changes.

Dr. Norman Lee Barr, chief of Space Environment and Life Sciences research for Republic Aviation Corporation, told some 400 food experts attending United Fruit's Ninth Annual Food Forum, at the Hotel Plaza in New York that "by artificially simulating the unique digestive process of a cow, scientists can test the practicality of converting normally indigestible food plant fibers into meat substitutes and sugars."

Principal advantage of this approach, if successful, Dr. Barr stated, was not only the creation of a new source of food and a variety of essential protein, fat, vitamins and minerals but the elimination of still another problem, leftover food scraps.

Food plants, he explained, are composed primarily of unused residue in the form of stalk, leaves and roots. Protein is buried within indigestible (to humans) cellulose walls. However, animals such as cows, through bacterial enzymes, can convert these plant cell walls to sugar, liberating the protein. This digestive process can be duplicated in a space vehicle, he said.

Dr. Barr, formerly director of Aviation and Space Medicine Research for the U.S. Navy and a recognized authority on human responses to high-altitude flight, pointed out that the problem of food and water on a space trip is as critical, if not more so, than any of the technological problems such as propulsion, guidance or re-entry.

Althought the essential dietary requirements are unchanged for space travel, the chef preparing space menus will be less concerned with gastronomic touches and will instead concentrate on the conservation of supplies, the propogation of plant cultures to convert waste into food to eat and oxygen to breathe, according to Dr. Barr. Special attention will also have to be given to the long-term effects of these restricted diets, including allergy development.

"We must remember that on a typical space voyage," Dr. Barr said, "there will be no replenishing of supplies from outside sources. The few foods chosen must be adaptable to all. Further, as supplies are depleted, the re-supply of food as well as water and oxygen, will depend upon the conversion of residues back to usable products."

On short trips with a one-man crew, Dr. Barr said he didn't think it would be necessary to set up elaborate means to convert waste matter. Dehydrated foods and liquid oxygen will be sufficient for diet needs and such waste as carbon dioxide and water could be removed with chemical agents like lithium oxide.

"But on the longer trips," he said, "we must be prepared to convert waste products back to food and water."

He explained that scientists are already deeply engaged in experiments designed to reclaim human liquid wastes, which amounts to about three gallons a week. Such work is being conducted at Republic, for instance, where the waste water is distilled under vacuum at low temperatures to produce a chemically pure, palatable ingredient. These experiments will be accelerated next year in the company's new Space Environmental Laboratory, he said.

On an extended space voyage it is probable that more water will be reclaimed than is needed for drinking and bathing. The excess, however, Dr. Barr said, can be used in combination with waste carbon dioxide to form oxygen and food to support plant life. It can also be used to cool the space cabin itself.

Looking some years ahead, the scientist said the time expansion which accompanies speed may have some fantastic effect on our food requirements.

A space traveler or pilot rocketing toward outer space at speeds just slightly below that of light (186,000 miles-per-minute) would have his digestion and watch slowed down to such a degree that at this speed he would then require one dinner for each 6,570 dinners eaten by his earthbound friends.

To carry this further, Dr. Barr said a pilot could make a roundtrip to one of the planets of Sirius, which is nine light years from the Sun, and need nothing more than a box lunch for the trip so maybe the air line caterers won't go out of business after all. Technically such a trip would take 18 earth-calculated years to complete, but the phenomena of time expansion and contraction of space, would make this apparent time lapse less than one day.

An Aviation Writer Views The FAA

By Ruth L. Snyder

Associate Editor, Aviation Missile Times

THE MANY STATEMENTS attempting to clarify the recent refusal to accept jet flights by Pilots of Eastern Air Lines and Pan American World Airways among others, leaves little doubt in anyone's mind that the Airline Captain still wants sole responsibility for the safety of his ship and passengers.

C. N. Sayen, President of the Air Line Pilots Association, said the word "strike" was a misnomer and that no strike had been called. The ALPA further stated it had no quarrel with the Federal Government or the Federal Aviation Agency's right to conduct inspections. It did, however, take the stand that Quesada and his FAA might be issuing arbitrary regulations without proper interpretation of existing regulations, constituting unwarranted interference with management-pilot relationships.

Without openly taking sides the able President of the ALPA states—"There is no strike but we have a very unsatisfactory condition on our hands that could be caused by avoidance of agreements negotiated with the Air Carriers in the interests of safety and hardly a proper function of an Agency of the Federal Government."

The pilots, without openly calling a strike, thumbed their noses at former General E. R. Quesada and more than 1,300 of Eastern's 1,900 and over 150 of Pan American's 600 based in New York, reported themselves sick or otherwise unable to fly.

What's Behind The Controversy?

From the time the first Copilot appeared on the right hand side of the Pilot, through the advent of the Flight Engineer, to the present Third Pilot status—one premise has been very, very true.

Only one man's brains and thoughts completely control the aircraft at any given time. It is usually the Captain even with the First Officer monitoring the controls, the Captain's brain and thoughts are still what is directing the flight.

The cockpit, "his front office," has and always will be HIS OFFICE and visitors in flight, or for that matter on the ground, are something to be left to his descretion alone.

Very often the Copilots or Third Pilots lack complete training but are receiving the training and experience from the one man whom the Airline trusts to know his aircraft inside out—the Captain. His Airline and Chief Pilot believe he has the experience, training and qualifications to safely fly their multi-million dollar transport with its human cargo.

When the 85th Congress enacted the Federal Aviation Act, creating the FAA, they put extraordinary power in the hands of Eisenhower's appointee, former General E. R. Quesada.

Let Airlines Operate As Airlines?

This writer has no fault to find with Quesada's ability as a military pilot or Air Force General. I do feel it is now evident he will run into stumbling blocks all the way, taking an arbitrary and commanding attitude towards pilots, who, even though in uniform, are civilians engaged in a civilian enterprise.

Last May, the Hon. Clair Engle, in the Senate of the United States accused Quesada of acting as Judge, Jury and Prosecutor. He further stated the FAA, as ruled by Quesada, accords the individual Pilot less consideration than that accorded the most common criminal in a court of law.

Ex-General Quesada must truly believe he is acting in the interests of aviation safety. He might however be quite instrumental in causing a new mandatory physical check for Airline Captains. It would probably be to see if they had as yet developed stomach ulcers from aggravation. I hesitate to think how Quesada would feel if a plaque inscribing his name at West Point stated: "Our graduate who changed the Schneider Test for Pilot blood pressure to the Quesada Test for complete Pilot nervous breakdown."

We have the best Military Air Force in the world. We in turn have the finest and most experienced Civilian Transport Service in the world. Military Flying Regulations and Civilian Flying differ as much as the thoughts and minds of a plane load of paratroopers would differ from a plane load of John Q ticket purchasing civilians.

Long, long ago the Government decided it would cancel its civilian Air Mail contracts and turn the flying over to the Military. It used its very best military pilots. Quesada might even have been among their number. The results and loss of life were so catastrophic it grieves me to mention the occasion. It did not last long . . . the Government soon learned its mistake, returned flying the mails to the civilian fly boys and what was left of the U. S. Air Corps to their military type flying. Mixing military training and thinking with civilian type flying was a costly mistake.

It would be unthinkable to put the Chief Pilot of any of our well run and experienced Airlines in absolute command of the Strategic Air Command but the present Administration sees fit to give absolute command of our Civilian Air Lines to an experienced Air Force General.

I sincerely doubt that Quesada knows beans from buttons about the process of thinking that goes through the mind of an Airline Captain when he believes that safety demands he decides who is allowed in the cockpit during flight.

And What Happens If "Official Thinking" Gets Around To 60-Year-Old Passengers?

By An Anonymous Airline Pilot

IT WAS interesting to note that the Federal Aviation Agency has decreed that Air Line Pilots must quit flying at the age of 60 in the interest of safety. This great decision is expected to cut down the accident rate, although nobody knows exactly how, since no airline accidents have ever been caused by the age factor. Nevertheless, it is felt in official circles that despite the fact that medical men have no positive tests to predict the occurrence of a heart attack, they do know that people who reach the age of 60 in apparent good health and eventually die from a heart attack always suffer the fatality after 60! Armed with this great truth, they have no choice but to get these dangerous old coots out of the cockpits before it starts raining airplanes—duty is clear!

A sarcastic old windbag friend of mine claims the FAA has indeed stumbled upon a dangerous element in its concern over unpredictable heart attacks but he says they have it all backwards. According to him, one of the reasons they pay younger copilots is to take over in case anything like this should ever happen to the senile old captain and unless they are taking money under false pretense they are supposed to be able to set the bucket o' bolts down in one piece. Actually, however, they are very often suffering from a younger type of heart attack which makes them more accident prone than the Ancient One. He suggests that we either advance the minimum age for copilots to 60 or start hiring ugly stewardesses. This sounds a little radical don't you think?

There's more to it though than the matter of the heart attack. Even though the captain of 60 may have amassed a tremendous amount of knowledge and practical know-how in years of flying and in spite of the fact that he has demonstrated his ability to pass every physical, mental and practical flying test, he will definitely lack the youthful agility, dexterity and coordination needed in an emergency requiring evasive action—such as, for instance, when a mountain looms up directly ahead when he tooling along in a 707 Jet.

Can he immediately half-snap roll the 707 and follow through with a neat Spit S (lower half of loop) to avoid this dangerous obstacle? The answer is positively "No!"—this sort of thing requires something the old fellows simply do not have. It's all well and good

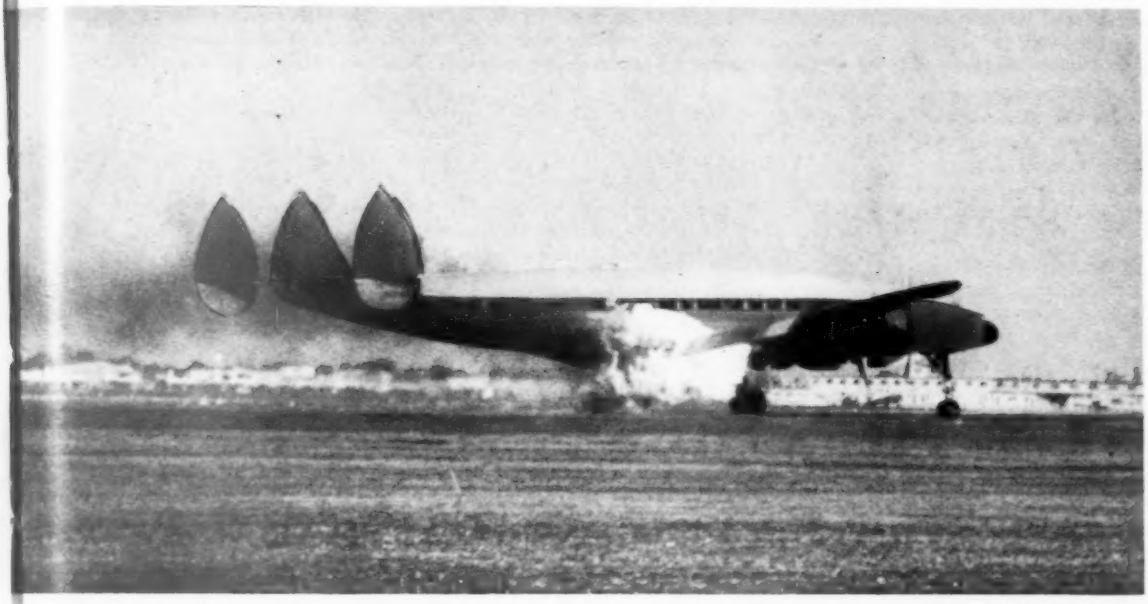
GUESS WHO?

to point out that his know-how and experience would keep him from getting into such a situation in the first place but that isn't the point—FAA seems to feel he wouldn't make it if he were over 60, so we'd best get rid of him. In fairness to FAA it must be said that they fully realize that, faced with such a situation, he wouldn't make it anyway even if he were only twelve—but we have to be practical about such things.

Another thing, competition being what it is and people being what they are, newer and more exciting things must be thought up every day to keep customers buying. Airline passengers are beginning to complain of the delay and monotony of flying endlessly back and forth in a holding pattern while the airliner awaits its turn to land in instrument weather. Right now, nothing can be done to eliminate the delay but the monotony could be taken out of the holding pattern. We understand that very soon now, all in-bound instrument flights in charge of captains well below Jack Benny's age will be assigned a "Cuban Eight" holding procedure when required to await a clearance to land. A "Cuban Eight" is a maneuver consisting of a mixture of the loop, half roll, dive and loop in the opposite direction. This should intensify passenger interest and give them the feeling of flying which is so satisfying once it is over with. Those with unfastened safety belts may even get to do a little personal flying around the inside of the airplane and meet some of the other passengers informally but solidly. The old timers can't handle such a maneuver as this and wouldn't even if they could—they're simply a thorn in the side of progress and must be replaced.

This all points up the fact that the FAA is doing a splendid job of "Official Thinking" in the interest of public safety — and it's only the beginning. Just as soon as they work the pilot age down to 18 we'll have drag-race take-offs, rock and roll landings and other jet age innovations to put zest and vigor back into flying—always with safety in mind, of course. Eventually the official eye will get around to over 60-year-old passengers and in time we may even get rid of these bums. Three cheers for the FAA—Bronx type of course—they deserve the best!

Monk E. Gland



The Field The Pilot Trusts

By Karl M. Ruppenthal

from Nation Magazine

LANDING UNEXPECTEDLY at Olathe, a few miles south of Kansas City, Kansas, another airliner recently made the news. It had lost a wheel from its landing gear. The pilot, bound for Peoria, had suspected trouble shortly after his takeoff at Chicago. Together with the copilot, he made the inspections that are possible in the air. Then he called the Chicago Midway tower and asked the operator to take a look. He circled the field as close as he could and made one pass in front of the tower. Two operators peered through field glasses. They were uncertain about the extent of damage, but suspected that a wheel was gone.

The captain next called the plane's hostess. Since flights from busy terminals normally waste little time getting under way once they are airborne, he knew the passengers would be curious about their circling the field. And he thought they had a right to information. He explained the facts to the stewardess, and amplified them with his guesses, then asked her to take it from there.

Quietly and efficiently she briefed the passengers. Since the load was light, and she had plenty of time, she talked to them individually. She carefully explained about the defective landing gear: while there was every reason to believe that the landing would be normal, there was no merit in taking chances. She hoped they would not mind a little inconvenience for safety's sake.

She gave each an extra pillow in case padding might be required. She made certain the seat belts were in order, for they might really be needed this time. Once on the ground, she told them they should proceed calmly to the exits, but with no undue delay.

Meanwhile, in the cockpit, the pilots too were busy. Establishing communications with the company, the copilot explained the situation. The captain requested a search of the runway the plane had just left; and would the company check old log books to see if there was any history which might bear on the condition of the gear? The log book in the plane was new, giving history for but the previous three days, and revealed nothing of importance.

It was not long before an answer came from the airport: the search crew had found a wheel. From all indications, it had fallen free on the takeoff roll. The crew found no evidence that anything else had come loose. Armed with this information, the captain radioed the dispatcher that he was diverting the flight to Olathe. Next, he called Airways Traffic Control and received clearance to his new destination.

There was a hum of activity on the ground. One man called Olathe to make certain the authorities there knew about the flight. Another checked with reservations for a count of passengers on the plane and arranged transportation for them from Olathe to their destinations. A third man called public relations: since anyone can listen to radio communications, some enterpris-

ing reporter would surely be on the scene, and it would be well for P.R. to have a man there, too.

On the ground at Olathe, there were other discussions. Since the runway was covered with snow, was there any danger of fire? Had it been dry, the crash crew would have coated the runway with foam to inhibit sparks and to smother incipient fire. But, was this necessary or desirable with a natural coating of snow?

The pilot finally brought his plane in. He came over the threshold using the least possible speed. Near the ground, he held her off until she could no longer stay in the air. Then, skillfully, he landed on the two remaining wheels, keeping one side from lowering as long as he could. Quickly, gracefully, he brought the plane to rest. It was a magnificent job of flying.

Seconds later, the crash crew arrived. Swarming about, hoses primed, they watched for possible fire. Quickly, efficiently, the well-briefed passengers deplaned. Showing little excitement, they walked to the terminal where an agent escorted them to a waiting limousine. Almost unnoticed the crew walked to Operations. An unneeded ambulance drove quietly away.

Newspaper Field Day

It was a great day for the reporters and photographers. What better for page one than a shot of a disabled plane on the runway! There she stood, ankle deep in snow, like an embarrassed queen on a throne that had unexpectedly collapsed. A reporter rode the passenger limousine, listening for tidbits. There would be human interest here. Probably it would be some woman's first plane ride. That would be worth half a column. Or an important speaker might have missed a lunch engagement. Or perhaps a bride might be late for her wedding. In any case, here was high drama: the world would be eager to learn how it feels to be in a plane that has left one wheel behind on the ground.

Satisfied with their work, the reporters filed their stories. AP distributed the pictures throughout the land. Radio newscasters painted dramatic oral images (though many of them couldn't pronounce Olathe). Two days later, the story was dead, wrung dry of human interest. A plane had landed safely, less a wheel, and nobody had been hurt.

In due course of time, there would be an investigation. Specialists from the Civil Aeronautics Board would overlook nothing. With cameras, tapes and transits, they would carefully check the place where the wheel had been lost. Speed and take-off roll would be documented. The plane itself might be impounded temporarily and the doubtful gear inspected. There would be hypotheses, tests, and checks. Mechanical deficiencies might be uncovered, and voluminous reports would be filed.

Weeks later there would be a hearing. Here, much evidence would be presented: the date and origin of the flight; its weight, fuel load, and destination; the certification of the air line and its right to operate scheduled flights; the name, age and qualifications of each member of the crew. And there might be pages more. Months later, the CAB would publish findings. Dryly, in monotonous fashion, it would relate the history of the flight. And in its conclusions, responsibility would be fixed: at fault would be the pilot, a mechanic or the air line. Or it might even blame a faulty part. But having assessed responsibility, the CAB would then close its books.

The FAA, too, might write a chapter. It might investigate to determine whether the pilot had acted legally in diverting to Olathe. Had the dispatcher concurred with him in the decision? Did the approved operating manual give the company authority to land a plane at Olathe under such conditions? If it did not, then by what authority was the landing made? If the captain claimed an emergency, was he justified in so doing? And if he was, did he, within the statutory time, file sufficient copies of an appropriate report detailing the reasons for his actions?

In the end, someone would be reprimanded, perhaps fined. And one more statistic would be added to the accident records of the fiscal year. And there, in all probability, the matter would end.

What About The Real Story?

For it is extremely unlikely that the real story will ever be written, because no reporter will take the trouble to inquire. He will not think to ask why the pilot chose Olathe—why a little town in Kansas, nearly 300 miles beyond the flight's destination and 435 miles from its origin. Why didn't he set her down in Peoria—or in Chicago?

Was it more than coincidence that a few months earlier another pilot had selected Olathe when his landing gear had also declined to function? The papers had carried that story, too: an incident, superb flying, coordinated activity on the ground. But, why did both pilots select Olathe, an airport where no air line has facilities, where they employ no mechanic and own no loading stand.

The unwritten story would reveal that both pilots landed at Olathe because they knew what they could expect there, and that is more than can be said for Chicago or Peoria. Olathe, long a training field for Navy pilots, is equipped for accidents which are sure to occur in training. It has adequate ambulances, fire trucks and other emergency equipment. Equally important, it has sufficient trained men who know what to do. And that, too, is more than can be said for many airports.

For it is a sad fact that the pilot faced with an emergency has no way of knowing the adequacy of the facilities on the ground. There is no list telling him what equipment is available. Of course, given time, the pilot may inquire by radio whether a field has a fire truck in operation, but even then its effectiveness remains unknown. For there are no standard requirements.

While it is true that major airports have emergency equipment, the variations are tremendous. No regulation sets forth the number or capacity of fire trucks. No rule stipulates crash-crew size, nor how well the crew must be trained. Even where airports have emergency equipment, men to operate them are not always available around the clock. Indeed, at some "modern" airports the men assigned to the equipment know little more about this job than would volunteers in Ben Franklin's bucket brigade. Other fields do have both the latest equipment and men trained to handle it efficiently.

For the business of emergency operations is in a no-man's land. It is true that the federal taxpayer pays the lion's share of the cost of building the nation's airports. But except in the nation's capital, once an airport is built, it is run by local groups. Safety items regarded as essential by the Port Authority of New York may be ignored by the airport commissions at Peoria or by the City Council in Dubuque, Iowa. And the pilot on the spot has no way of knowing whether a regular airport has emergency equipment, whether the equipment is in operating condition, or whether its handlers have ever seen a fire.

There is urgent need to assess the emergency facilities at all air line airports and to remedy deficiencies that may be discovered. It is all very well to be "for" safety, much more important to achieve it. Today many of our airports are like poorly designed industrial plants. Tacked on the walls are numerous signs saying, "Safety First," "Be Careful," "Pay Attention to the Rules or Lose Your Job." But the workers in the plant would trade all the signs for reliable safety equipment continuously manned by competent operators.

Northeast Captain Is Retired With Honors

On the occasion of his retirement after 20 years of service with Northeast Airlines, Captain Lloyd B. Hazen was presented with this watch by the many pilots who were closely associated with him during his flying career. Left to right: Captain Milton H. Anderson, Master Executive Council Chairman; Captain Hazen; F. M. Coates, Assistant to the President of Northeast; Captain Edward A. Cataldo, Chairman of the Benevolence Committee, Council No. 9, ALPA; Thomas L. Grace, Vice-President, Operations, Northeast; and, Captain Paul H. Clancy, Special Assistant to the Vice-President of Operations, Northeast. During the same ceremony Captain Hazen was presented with an official commemorative scroll and a detailed scale model of the Convair 880 Jet, a fleet of which will soon enter service with Northeast.

North Central President Honored By Pilots

North Central Airlines President Hal N. Carr was honored recently by North Central's master executive council for his "keen interest in pilot opinion" and the "excellent company-pilot working relationship" maintained between the union and the airline.

The council adopted the resolution commending Carr in regular session at Minneapolis. A framed copy of the resolution was presented to him by North Central Captain Delmar G. Hendrickson, Detroit, master executive council chairman.

This special recognition culminates more than 12 years of amiable union-management relations with all North Central employee groups. There has never been a strike against North Central.

Carr has maintained an open-door policy for all personnel since he assumed the presidency of North Central in 1954 at the age of 32. Employees are encouraged to bring suggestions and complaints to any member of top management.

Besides personal visits with Carr, the pilots implement this by maintaining pilots' writeup books in Chicago, Detroit, and Minneapolis, listing day-by-day notations of all operational discrepancies which they observe over the airline's nine-state system. The pages go directly to Carr who refers each item to a department head for action. Investigations are conducted, and the pilot and Carr receive an answer on each matter.

In the six years he has headed the airline, Carr has made it a practice to attend pilot and other union council meetings. He also makes unannounced visits, during and after business hours, to various departments, offices and stations over North Central's system to talk directly with employees.

Captain Logs 30 Years

Thirty years ago Captain Victor A. (Vic) Wright joined Pan American. Today, the airline's chief check pilot, cargo, he is the only active line pilot with three decades service in the Latin American division.

Captain Wright was employed on June 16, 1930, when Pan Am was scarcely more than a lusty fledgeling. He was a mechanic then. In 1939 he became a junior pilot and three years later was appointed a captain.

Since then he has flown the airline's routes throughout Latin American and across the Pacific, logging nearly five million miles in the air. In 1950 he was named one of the 10 top pilots in the nation by American Aviation magazine. He also won a special citation from the U. S. Army for his role in wartime operations. One of a small group of airmen making Pacific Ocean surveys, he helped blaze the trail for scheduled air service to the Orient.

Receives Service Award

Captain B. James Hogg dean of Hawaii's airline pilots was honored recently by his fellow pilots and Hawaiian Airlines executives on the occasion of his 30th year of service with the company.

Approximately 100 pilots were in attendance at a dinner held by the Princess Kaiulani Hotel in his honor. Captain Hogg was presented with minature silver wings by HAL President Arthur D. Lewis, in recognition of his distinguished record of loyal service.

Captain Hogg was born at Lihue, Kauai fifty-two years ago and has flown

inter-island air routes longer than any aviator in the history of Hawaii. He is presently commander of HAL's 4-engine DC-6C on overseas flights between Honolulu and Midway Island.

Board Of Education Post

Arthur F. Gardner, 41, Western Air Lines captain and an attorney, is the new president of the Los Angeles Board of Education, one of the most important elective school board jobs in the United States.

Gardner is now serving his second full term as board of education member in addition to his regular duties as a WAL captain. He was first elected to the board in 1951 while flying as a copilot.

A Marine Corps pilot during World War II, Gardner joined WAL in 1945. He is a graduate of De Pauw University, Greencastle, Indiana, and did graduate work toward his degree in law at Syracuse University, Syracuse, New York.

Gardner and his wife, Mary, who shares his enthusiasm for his new job, have four excellent reasons for their interest in education—their four school-age sons, Charles Walcott, 17; Arthur, Jr., 15; Dennis, 13; and Larry, 12.

Captain Gets Promotion

Captain M. C. Safrit (BNF) has been promoted to Assistant System Chief Pilot. Captain Safrit is a 21-year veteran Braniff pilot. He is a native of North Carolina and attended North Carolina State College. Safrit learned to fly at Dallas Aviation School in 1937 and served as instructor for the school until joining Braniff as a copilot in 1939. He was promoted to captain in 1941, to check pilot in 1954 and has been assistant chief pilot for the company since 1958.

MEET YOUR OFFICERS

CAPTAIN H. B. (Andy) Anders was re-elected Vice-President of Region V in the elections just concluded July 1, 1960. Region V represents the largest regional area in the Association structure and encompasses councils in such points as Alaska, Hawaii, Hong Kong and in addition to the West Coast states includes councils as far East as Salt Lake City.

Captain Anders, 43, is an Association veteran with long conscientious service as a representative in ALPA. A native of Ohio, Captain Anders attended Ohio University where he participated in the first civil pilot training program instituted by the Government prior to World War II. On graduation from Ohio University with a bachelor's degree in civil-engineering, he continued his flying training while employed by an engraving firm in Cleveland. He began his air line career with United Air Lines in 1940 and will receive his 20 year service pin this fall. He has logged over 17,000 hours over most of the company's routes while based in the Western United States.

A member of ALPA since 1941, he was elected to his first ALPA office in 1945 as Chairman of the UAL ALPA council at Salt Lake City, Utah. In addition to serving on various UAL ALPA committees he served on the UAL negotiating committee from 1949 through 1951, was chairman of the Committee and chairman of the UAL Master Executive Council in 1951. He recalls it as a rather busy year, one in which flying the line ran a poor second to ALPA duty—two months of flying 10 months for the pilots.

Although his prime interests are flying and ALPA, he is busy in other fields. Presently Captain Anders is actively campaigning in the primary for Commissioner of the Port of Seattle.

Captain Anders

Despite a heavy work-load, Captain Anders feels that since the Seattle-Tacoma Airport comprises approximately 40 per cent of the assets of the Port of Authority it becomes increasingly important that those with actual aviation experience serve on this commission; both from the standpoint of service to the community and to insure proper planning and progress in airport development.

Married, Captain Anders has two sons, Eric and Marc, aged 14 and 13 respectively.

The crew of this Braniff DC-3 are shown donning black armbands in tribute to the DC-3s last flight to Tulsa. Braniff is in the process of Phasing out its remaining DC-3 aircraft.

Nations Trunk Lines Post A Five-Month Operating Loss

The trunklines had an operating loss of $18,351,281 for the first five months of 1960 on their domestic operations and had a net loss of $13,345,568 for the same period, according to the latest CAB figures. The full six-month period is expected to reflect a loss when carrier reports are submitted to CAB in about three weeks.

The five-month figures contained in CAB's Form 41 reports show operating revenues of $766,228,112, a 10.1 per cent increase over last year. But domestic operations were carried on at a $18 million loss for the period due to a whopping 18.7 per cent rise in operating expenses. For the second half of the year the recent fare increases may make themselves felt to ease the profit situation.

As of May 31 the trunks were $53,576,022 behind their 1959 pace when they showed a five-month profit from domestic operations of $35,224,-741. For the same period this year there has been an operating loss of $18,351,-281. Net also lagged behind last year's figure, with over $33 million differences between last year's net profit figure of $19,816,416 and this year's net loss of $13,276,115.

Six trunks lost money in the first five months and six made money. American, Western and Delta had the greatest profits with $1.1 million, $1 million and $950,000 respectively. Capital had the biggest loss, $6.3 million, followed by TWA with a $5.7 million loss. Northeast lost $2.5 million and United had a $1.6 million loss.

Results for the month of May were disappointing in that the trunks operated at $1,514,672 loss and had a net loss of $2,649,908. It had been hoped that April, which had resulted in a $4,916,759 operating profit and a $2,822,715 operating gain, would lead into a May upswing. Overall operating revenues for May were $158,065,755 while operating expenses were $159,-580,427.

Net May profits and (loss) figures are: American, $697,993; Braniff, $110,686; Capital, ($949,079); Continental, $83,000; Delta, $269,000; Eastern, ($1,046,954); National, ($1,-126,316); Northeast, ($682,890); Northwest, ($315,792); TWA, ($602,-396); United, $886,120, and Western, $26,720.

United, Capital Continue Steps Towards Merger Approval

The Board of Directors of United Air Lines, has approved plans for the merger of Capital Airlines into United.

The directors set Friday, October 14, 1960, as the date for a stockholders' meeting to obtain approval of the merger plans. Approval also was given to the merger plans by the Board of Directors of Capital Airlines who met August 11 in New York City. October 14 was set for a meeting of Capital stockholders to approve the merger.

Formal application to the Civil Aeronautics Board for approval of the merger was filed after United and Capital directors met. The application asks for an extended hearing, stating that one of the conditions of the merger is that the CAB take action on or before February 1, 1961.

Another condition of the merger is that the present operating certificates of Capital shall remain as they are, or shall not be altered except as previously requested by Capital in applications to the CAB.

Financial arrangements between United, Capital, and Vickers-Armstrongs, Ltd., regarding settlement of obligations between the latter two companies, already have been agreed to. Final approval of this portion of the merger will be up to the stockholders of both airlines.

The press release announcing the merger had indicated Vickers would receive $15.9 million in United preferred stock, 60,000 shares of UAL common, warrants to purchase 200,000 shares of United common at $45 per share and 15 surplus Viscounts.

The CAB move to speed the case came when the Bureau of Air Operations, which will handle the application, through its Special Authorities Division, wrote the carriers, requesting detailed information on the move. Other moves to expedite hearing and decision by the Board are expected. The letter asked for a history of the negotiations, operational and equipment data and a list of contemplated directors and officers of the surviving company with an outline of its capital structure.

Sabena Takes The Lead In Congo Evacuation

The value of civil aviation in times of a national crisis was demonstrated recently during the Congo uprising. Belgium citizens were caught in the violent reaction of Congo independence. Pillage, rape and murder were reported with most communications cut between the Congo and the outer world. Sabena, Belgium's civil flag carrier, was called to divert every four-engine aircraft in its fleet: five Boeing jetliners, nine DC-7s, 12 DC-6s and 10 DC-4s. South African Airways schedules were also disrupted as its DC-7Bs and DC-4s were put on mercy flights from Leopoldville and Brazzaville. For four days Central African Airways' entire Viscount fleet was thrown into the rescue work. As a result of the airlift operations, many Belgium citizens survived—and civil aviation again proved its worth.

UPI Photo

The Russian jets shown here at an airport in Italy carried dignataries to and from the Congo during the first days of strife

Association President C. N. Sayen (left), and ALPA Region V Vice-President H. B. Anders are shown in the cockpit of General Electric's Caravelle which landed recently at Chicago's Midway Airport during a tour of the U. S.

Survey Shows Cigarettes Affect Night Vision

The average smoker has a carbon monoxide saturation of five per cent—enough to reduce night vision by 20 per cent, according to a recent survey by the Royal Australian Air Force.

The decrease in vision is caused by carbon monoxide in smoke. Carbon monoxide combines with the hemoglobin restricting the oxygen intake and inducing mild hypoxia.

According to the RAAF, a heavy smoker piloting a plane at night, begins his operation with a self-induced handicap of one-fifth of his effective vision. This cannot be reduced through the use of oxygen since carbon monoxide saturation takes many hours to counteract.

Analyzing a typical cigarette, it is seen that the average "coffin-nail" contains at least two poisons—nicotine and carbon monoxide. The effects of carmon monoxide are well known, but nicotine is more insidious in its effects.

Nicotine has been found to absorb through the mucous membrane of the mouth and through the linings of the lungs—resulting in an increase in metabolic activity which in turn increases the requirement for more oxygen.

The conclusion—moderate smoking is probably not harmful to the average man. But to airmen, complete and unimpaired vision during a flight is a vital necessity and the most compelling reason for avoidance of an excessive use of tobacco.

NIGHT VISION EFFECTIVENESS

	Smoker	*Non-Smoker*
Sea level to 4,000 ft.	80%	100%
6,000 ft.	75	95
10,000 ft.	60	80
14,000 ft.	45	65
16,000 ft.	40	60

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FAA Control Area Floor

FAA is proposing lowering of the floor of the continental control area from 24,000 to 14,500 ft. mean sea level. The rulemaking would meet a 1957 CAA goal of establishing controlled airspace in all areas above 15,000 ft., and cover middle as well as upper-altitude airways in FAA's planned "three-layer" airspace structure.

Effect of the rulemaking on the relatively small amount of general aviation traffic above 14,500 ft. will be to drop to the middle altitudes current high-altitude minimums for VFR flight—five miles visibility, and cloud distances of one mile horizontally and 1,000 ft. vertically. Below 14,500 ft., VFR would be possible at the minimums that now prevail up to 24,000 ft.—three miles visibility and distances of 2,000 ft. horizontally, 500 ft. under, and 1,000 over clouds.

Original plan was for setting of the floor at 15,000 ft., but FAA wants to drop it to 14,500 to include in the new continental control area the busy 15,000 ft. flight level, and provide a 500 ft. "buffer" between controlled and uncontrolled airspace. Where terrain exceeds 14,500 ft. MSL, the control area would rise 1,500 ft. above it.

Dulles Construction

Rescheduling and sharply accelerated work on development of the mobile lounge has all but removed its threat of delay in opening of Dulles International Airport, according to FAA officials. However, with just eleven months remaining, contractors have just begun installation of the first footing for the intricate terminal building and only rough grading for service positions, aprons, parking lots and roads. FAA's hope for a July 1 opening depends to a great degree on good construction weather.

New Noise Suppressor

General Acoustics Corporation is producing a new lightweight, portable noise suppressor for jet ground testing. This new unit, the GAC Model AE-15 jet exhaust suppressor, has a vertical deflection feature for the exhaust and also protects ramp personnel and eliminates hot gas erosion of ramp surfaces.

The suppressor was designed to facilitate ground testing of jet aircraft, while providing a minimum of irritation to airport neighbors.

Industry Briefs

TWA-NEA Merger

The Trans World Airlines-Northeast Airlines merger is still very much alive according to TWA spokesmen. The proposed merger was "the main consideration" at the latest TWA board meeting. At present the necessary papers have been filed with CAB but are not signed and formal application for Board approval of the merger has not been made.

Eastern Reports Loss

EAL has reported a net loss of $3,894,000 or $1.23 per share, for the six months through June. This in contrast a net profit of $3.6 million in the first six months of 1959.

AA Begins 720 Service

American Airlines began its Boeing 720 intermediate range jet service during August when it initiated daily round trip service between Cleveland and Los Angeles. American's 720s carry 48 first class and 50 coach passengers. The company has 25 720s on order.

Rio Jet Runway Opens

The jet runway at Galeao, the international airport of Rio de Janiero has been completed and was opened to all aircraft late in July.

JAL New York Extension

According to press reports, Japan is planning on asking Uncle Sam for permission to extend JAL's present trans-Pacific service across the U. S. to New York, an important segment in Japan's planned development of a round-the-world service.

PAL Opens IDL Terminal

Delta Air Lines opened its new passenger terminal at Idlewild International Airport last month. Delta, operating a fleet of Convair 880s and Douglas DC-8s is the first U. S. carrier to operate jets exclusively from Idlewild.

Air Lines Honored By National Safety Council

Twenty-one air lines in the United States have been honored by the National Safety Council for outstanding 1959 safety records.

The awards are for fatality-free operations for one year. The lines also must have major accident rates lower than the average rate for their group.

Air lines are broken down into groups on the basis of total aircraft hours. Each line carries passengers in either the United States, the continental or transcontinental fields.

The 1959 passenger death rate was .69 deaths per 100 million passenger miles. It was the eighth consecutive year the figure was below 1.0, the council said.

The winners are: Award of Honor (75,000 hours)—Bonanza Air Lines, Central Airlines, Delta Air Lines, Hawaiian Airlines, Lake Central Airlines, North Central Airlines, Pacific Northern Airlines, Pan American-Grace Airways, United Air Lines and Western Air Lines. Award of Merit (10,000-75,000 hours)—Alaska Airlines, Aloha Airlines, Chicago Helicopter Airways, Frontier Airlines, Mackey Airlines, Southern Airways, and Transportation Corp. of America. Certificate of Commendation (fewer than 10,000 hours)—Alaska Coastal Airlines, Los Angeles Airways, Resort Airlines and Uraba, Medellin & Central Airways.

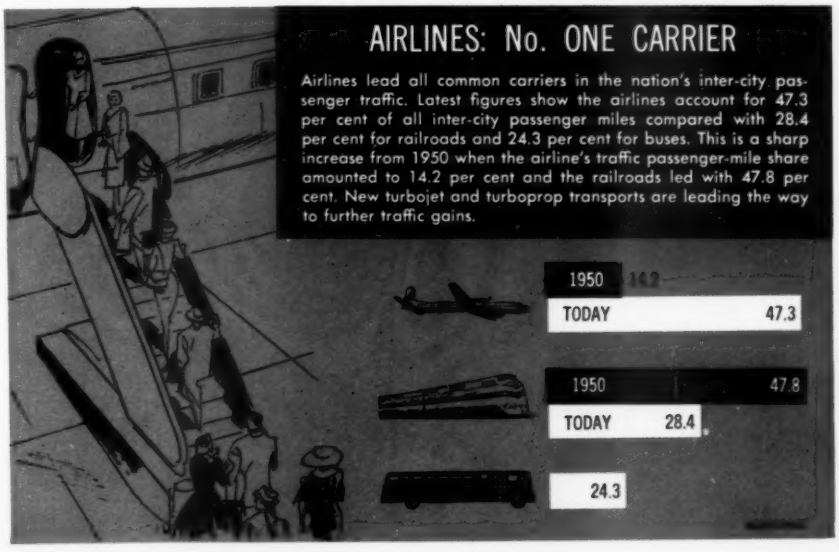
The awards are administered by the council's Committee on Air Transportation Safety, which includes representatives of the council and of the air transportation industry. The committee chairman is Col. W. L. Tubbs, an Air Force safety officer.

CAB Cites Bomb As Cause Of National Crash

The CAB has cited the probable cause of the crash of a National Airlines DC-6B near Bolivia, N. C., last January 6 as the result of an explosion within the passenger cabin.

In the accident report the Board concluded that the dynamite was exploded by means of a dry cell battery within the passenger cabin at a point beneath the extreme right seat of row No. 7.

The Board said it was able to recover and assemble about 90 per cent of the wreckage and noted that most of the missing pieces came from a triangular-shaped hole on the right side of the fuselage forward of the leading edge of the wing. The Board said it considered a number of possibilities but all were eliminated during its investigation except bomb damage. The force of the "agent causing the initial cabin failure" indicated an explosive substance, as did the "deformation of the structure surrounding the focal point of the damage" and the "fragmentation of the cabin."


AIRLINES: No. ONE CARRIER
Airlines lead all common carriers in the nation's inter-city passenger traffic. Latest figures show the airlines account for 47.3 per cent of all inter-city passenger miles compared with 28.4 per cent for railroads and 24.3 per cent for buses. This is a sharp increase from 1950 when the airline's traffic passenger-mile share amounted to 14.2 per cent and the railroads led with 47.8 per cent. New turbojet and turboprop transports are leading the way to further traffic gains.
1950
TODAY
47.3
1950
47.8
TODAY
28.4
24.3

As Others See It

Excerpts from Comments in The News of Interest to Pilots

A Swollen Mail Bag: *From "Trends and Forecasts," August 2, 1960 Aviation Daily.*

"Pete Quesada his mailbag swollen by third seat and earlier public bouts with ALPA, has retained a part-time "consultant"—a Georgetown University Professor—to handle it. . . ."

Pilot Training: *From the International Federation of Air Line Pilots Associations Monthly News Bulletin.*

"The Federation's policy in relation to jet transport aircraft is that a minimum of three operating crew members are required on all routes and that it is highly desirable that all should have a pilot's basic training. . . ."

Folded Wings: *From the Miami Herald.*

"The eyes of these men (commercial air line pilots who have reached the age of 60), only about 40 among the thousands who fly the nation's air fleet, have seen an age born and blossom—the age of flight. It has come so swiftly that these pioneers, as they fold their wings, are still the best in the business. . . ."

Pilot Tribute: *From Paul Williams' Column "Aviation" appearing in the Boston Massachusetts, Traveler.*

"Chalk up one for the old boys. And a mighty good one it was, too, as any of you will agree who read the inspiring story recently of the ditching of a Northwest Orient Airlines DC-7C off the Philippines. It was a superb job of airmanship and it was pulled off by a veteran airline pilot of 53, Capt. Dave Rall. Every now and then something of this nature comes along and provides a heartwarming change from the usual dismal diet of strife, crisis and more crisis. We should be grateful to Rall for proving once again that man can rise above himself occasionally and make us proud, at least for a brief moment, of the species. . . ."

ALSSA Moveout: *From the Chicago Sun Times.*

(Interviews with Hostesses at a News Conference called to explain moveout of ALSSA staff members from ALPA building.) Betty Pursell, N. Y. "We're opposed to moving out. We think we can settle our differences with the pilots' union." Virginia Bach, Newark, N. J., called the move "a complete surprise to many of us. None of us was notified."

Arbitrary Rule Making: *From Sam Hunter's column appearing in the Fort Worth, Texas, Cross Country News.*

"We can't resist offering our two cents worth in the squabble between the Air Line Pilots Association and Elwood R. Quesada over the grounding of commercial pilots older than 60. Can you remember when any accident has been traced directly to the fact that a pilot was 'aging?' Nope, you can't.

A Majority Opinion: *From an article by Myron B. Gubitz appearing in the September issue of Pageant Magazine.*

". . . There is one outstanding refrain in all criticisms leveled at FAA: Administrator Quesada has far too much power—the power to make rules, change rules, enforce them, punish offenders ,and evaluate the worth of his own rule-making. His authority, critics say, is unbalanced and excessive. . . ."

Move To Bar Liquor Aloft

Senators Frank Church (D-Idaho) and Hubert Humphrey (D-Minn.) recently urged the Senate Commerce Committee to report legislation barring liquor service aboard domestic airliners. Church said he is convinced that liquor poses a real threat to safety in the air and Humphrey asked that prompt action be taken this session on bill (S 1432) or a similar one.

The Saga Of Jack Jackson!

Herein lies the saga of a modern-day, grey-flannel, gold prospector as reported by the *Dallas, Texas, Time-Herald.*

While making some exploratory calls, an airline sales representative passed an unmarked door. Inside were sounds of frenzied typing.

He walked in and said, 'I'm Jack Jackson, Airline representative.

'Oh? said the girl at the desk.

Mr. Jackson asked if the people in the office ever had occasion to fly.

'Oh sure. Every day.'

'Really?' he said, hot on the scent of a sales kill. 'Where do they fly?'

'Oh, just everywhere!'

Almost breathless now with this happy discovery, Mr. Jackson asked how many people they had who flew.

'Oh, three or four hundred.'

'Wonderful' said the salesman.

'What company is this?'

'This,' she said, 'is the regional office of the Air Line Pilots Association'."

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CAB Accident Resume

The CAB has issued its Resume of Accidents of U. S. Air Carriers, Rotorcraft and Large General Aviation Aircraft for 1959. The booklet discusses aviation accidents for the year and shows a total of 102 air carrier accidents in 1959 with 18 of them involving fatalities. There were 272 passenger fatalities, 61 crew deaths and eight others for a total of 340 deaths for all segments of the industry. General aviation accidents were divided into fixed-wing aircraft of over 12,500 lbs. and all rotorcraft. There were 38 accidents on the heavier general aviation aircraft and 33 fatalities. For the year there were 126 rotorcraft accidents involving 48 fatalities. Copies are available from Publications Section, Room 1021, CAB, Universal Building, Connecticut and Florida Avenues, N. W., Washington, D. C.

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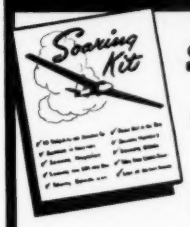

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